Canadian Journal of Zoology

Revue canadienne de zoologie

Volume 71, 1993

Contents / Sommaire

JANUARY / JANVIER

ARTICLES

Donald W. Thomas Lack of evidence for a biological alarm clock in bats (*Myotis* spp.) hibernating under natural conditions 1

C.G.H. Steel Storage and translocation of integumentary calcium during the moult cycle of the terrestrial isopod *Oniscus asellus* (L.) 4

P.A. Lavin and J.D. McPhail Parapatric lake and stream sticklebacks on northern Vancouver Island: disjunct distribution or parallel evolution? 11

Suzanne Dunel-Erb, Yannick Bailiy, and Pierre Laurent Pattern of gill innervation in two teleosts, the perch and the trout 18

Dominique Augert and Pierre Joly Plasticity of age at maturity between two neighbouring populations of the common frog (*Rana temporaria* L.) 26

Shaun P. Collin and Bernd Fritzsch Observations on the shape of the lens in the eye of the silver lamprey, *Ichthyomyzon unicuspis* 34

Mark D. Engstrom, Allan J. Baker, Judith L. Eger, Rudy Boonstra, and Ronald J. Brooks Chromosomal and mitochondrial DNA variation in four laboratory populations of collared lemmings (*Dicrostonyx*) 42

Petri Nummi Food-niche relationships of sympatric mallards and green-winged teals 49

Rodney G. Bradford and T. Derrick Iles Retention of herring *Clupea harengus* larvae inside Minas Basin, inner Bay of Fundy 56

Anthony J. Gaston, Harry R. Carter, and Spencer G. Sealy Winter ecology and diet of Ancient Murrelets off Victoria, British Columbia 64

Jon P. Costanzo and Richard E. Lee, Jr. Cryoprotectant production capacity of the freeze-tolerant wood frog, *Rana sylvatica* 71

David L. Gibo and Jody A. McCurdy Lipid accumulation by migrating monarch butterflies (*Danaus plexippus* L.) 76

Nevin Aspinwall, Douglas Carpenter, and Judy Bramble The ecology of hybrids between the peamouth, *Mylocheilus caurinus*, and the redside shiner, *Richardsonius balteatus*, at Stave Lake, British Columbia, Canada 83

Rüdiger Riehl and Hartmut Greven Fine structure of egg envelopes in some viviparous goodeid fishes, with comments on the relation of envelope thinness to viviparity 91

John G. Irons III, L. Keith Miller, and Mark W. Oswood Ecological adaptations of aquatic macroinvertebrates to overwintering in interior Alaska (U.S.A.) subarctic streams 98

Rakesh K. Srivastava and Joseph A. Brown Assessment of egg quality in Atlantic salmon, *Salmo salar*, treated with testosterone: biochemical composition 109

John W. McCreadie and Murray H. Colbo Seasonal succession and spatial–temporal distribution patterns of six larval cytospecies of the *Simulium venustum/verecundum* complex (Diptera: Simuliidae) 116

John S. Millar and Taye Teferi Winter survival in northern *Peromyscus maniculatus* 125

David J. Huggard Prey selectivity of wolves in Banff National Park. I. Prey species 130

David J. Huggard Prey selectivity of wolves in Banff National Park. II. Age, sex, and condition of elk 140

Jean O. Lacoursière and Douglas A. Craig Fluid transmission and filtration efficiency of the labral fans of black fly larvae (Diptera: Simuliidae): hydrodynamic, morphological, and behavioural aspects 148

J.L. Garlich-Miller, R.E.A. Stewart, B.E. Stewart, and E.A. Hiltz Comparison of mandibular with cemental growth-layer counts for ageing Atlantic walrus (*Odobenus rosmarus rosmarus*) 163

Rowland M. Shelley The milliped genus *Underwoodia* (Chordeumatida: Caseyidae) 168

D.K. Cone, D.J. Marcogliese, and W.D. Watt Metazoan parasite communities of yellow eels (*Anguilla rostrata*) in acidic and limed rivers of Nova Scotia 177

Kazuhiko Aoyagi, Yutaka Kojima, and Mineo Saneyoshi Developmental capacity of non-nucleated embryos of coho salmon, *Oncorhynchus kisutch*, induced by γ-irradiation 185

M.A. Kasapi, P. Domenici, R.W. Blake, and D. Harper The kinematics and performance of escape responses of the knifefish *Xenomystus nigri* 189

Sharon B. Emerson, Carol N. Rowsemitt, and David L. Hess Androgen levels in a Bornean voiceless frog, *Rana blythi* 196

Darwin R. Wiggett and David A. Boag The proximate causes of male-biased natal emigration in Columbian ground squirrels 204

NOTES

Harry L. Holloway, Jr. and Craig A. Shoemaker Roentgenology of myofibrogranuloma in walleye, *Stizostedion vitreum* 219

Javier Juste and Carlos Ibáñez An asymmetric dental formula in a mammal, the São Tomé Island fruit bat *Myonycteris brachycephala* (Mammalia: Megachiroptera) 221

John L. Koprowski The role of kinship in field interactions among juvenile gray squirrels (*Sciurus carolinensis*) 224

Instructions to Authors / Recommandations aux auteurs vii

FEBRUARY/FÉVRIER

ARTICLES

Jeffrey G. Kopachena and J. Bruce Falls Postfledging parental care in the White-throated Sparrow (*Zonotrichia albicollis*) 227

Marta Martínez Wells Laboratory hybridization in green lacewings (Neuroptera: Chrysopidae: *Chrysoperla*): evidence for genetic incompatibility 233

David B. Donald and David J. Alger Geographic distribution, species displacement, and niche overlap for lake trout and bull trout in mountain lakes 238

K.-H. Kiessling and A. Kiessling Selective utilization of fatty acids in rainbow trout (*Oncorhynchus mykiss* Walbaum) red muscle mitochondria 248

Brian D. Wisenden Female convict cichlids adjust gonadal investment in current reproduction in response to relative risk of brood predation 252

Jeffrey B. Marliave and Claudia E. Mills Piggyback riding by pandalid shrimp larvae on hydromedusae 257

Knud Falk and Jan Durinck The winter diet of thick-billed murres, *Uria lomvia*, in western Greenland, 1988–1989 264

Mark Bolton, Pat Monaghan, and David C. Houston Proximate determination of clutch size in lesser black-backed gulls: the roles of food supply and body condition 273

Y. Rouger and N.R. Liley Effect of social environment on plasma hormones and availability of milt in spawning male rainbow trout (*Oncorhynchus mykiss* Walbaum) 280

Verena Tunnicliffe, Daniel Desbruyères, Didier Jollivet, and Lucien Laubier Systematic and ecological characteristics of ***Paralvinella sulfincola*** Desbruyères and Laubier, a new polychaete (family Alvinellidae) from northeast Pacific hydrothermal vents 286

Ulf Jondelius and Mikael Thollesson Phylogeny of the Rhabdocoela (Platyhelminthes): a working hypothesis 298

Rodney G. Bradford Role of spawning condition in the determination of the reproductive traits of spring- and autumn-spawning Atlantic herring from the southern Gulf of St. Lawrence 309

David A. Galbraith, Brad N. White, Ronald J. Brooks, and Peter T. Boag Multiple paternity in clutches of snapping turtles (*Chelydra serpentina*) detected using DNA fingerprints 318

J.D. Darling and K. Mori Recent observations of humpback whales (*Megaptera novaeangliae*) in Japanese waters off Ogasawara and Okinawa 325

Joel T. Heinen Aggregations of newly metamorphosed *Bufo americanus*: tests of two hypotheses 334

Catherine M. Schaeff, Scott D. Kraus, Moira W. Brown, and Bradley N. White Assessment of the population structure of western North Atlantic right whales (*Eubalaena glacialis*) based on sighting and mtDNA data 339

Donald T. Stewart Sexual dimorphism in thick-billed murres, *Uria lomvia* 346

Raymond Leclair Jr., Chantale Lamontagne et Antoine Aubin Allométrie de la masse du squelette chez des amphibiens anoures 352

John W. McCreadie and Murray H. Colbo Larval and pupal microhabitat selection by *Simulium truncatum* Lundström, *S. rostratum* Lundström, and *S. verecundum* AA (Diptera: Simuliidae) 358

Gérard Massé, Pierre Dumont et Réjean Fortin Survie oeufs–juvéniles et force des classes d'âge des grands brochets (*Esox lucius*) de la rivière aux Pins, près de Montréal, Québec 368

Fernando Alvarez Risks of fighting in relation to age and territory holding in fallow deer 376

E.R. Loew, W.N. McFarland, E.L. Mills, and D. Hunter A chromatic action spectrum for planktonic predation by juvenile yellow perch, *Perca flavescens* 384

Dean W. Blinn, Clay Runck, and Ronald W. Davies The impact of prey behaviour and prey density on the foraging ecology of *Ranatra montezuma* (Heteroptera): a serological examination 387

C.G. Carter, D.F. Houlihan, J. Brechin, and I.D. McCarthy The relationships between protein intake and protein accretion, synthesis, and retention efficiency for individual grass carp, *Ctenopharyngodon idella* (Valenciennes) 392

A. Brinckmann-Voss, D.M. Lickey, and C.E. Mills ***Rhysia fletcheri*** (Cnidaria, Hydrozoa, Rhysiidae), a new species of colonial hydroid from Vancouver Island (British Columbia, Canada) and the San Juan Archipelago (Washington, U.S.A.) 401

W.M. Oxner, J. Quinn, and M.E. DeMont A mathematical model of body kinematics in swimming tadpoles 407

Toshiaki J. Hara, Torarinn Sveinsson, Robert E. Evans, and Dorthy A. Klaprat Morphological and functional characteristics of the olfactory and gustatory organs of three *Salvelinus* species 414

Patrick Scaps, Christian Retière, Gaston Desrosiers et Gilles Miron Effets de la ration alimentaire, de la densité intraspécifique et des relations entre individus sur la croissance des juvéniles de l'espèce *Nereis diversicolor* (Annelida : Polychaeta) 424

NOTES

Allen W. Shostak Survival of *Petasiger nitidus* (Digenea: Echinostomatidae) cercariae in relation to temperature, pH, and salinity 431

Nancy G. Solomon Comparison of parental behavior in male and female prairie voles (*Microtus ochrogaster*) 434

R.J. Ongarato and E.J. Snucins Aggression of guarding male smallmouth bass (*Micropterus dolomieui*) towards potential brood predators near the nest 437

Phillip J. Clapham, Lisa S. Baraff, Carole A. Carlson, Margaret A. Christian, David K. Mattila, Charles A. Mayo, Margaret A. Murphy, and Sharon Pittman Seasonal occurrence and annual return of humpback whales, *Megaptera novaeangliae*, in the southern Gulf of Maine 440

MARCH/MARS

ARTICLES

Carolyn N.L. Seburn Spatial distribution and microhabitat use in the five-lined skink (*Eumeces fasciatus*) 445

Mark R. Simpson Reproduction in two species of arctic arachnids, *Pardosa glacialis* and *Alopecosa hirtipes* 451

Lisa M. Hiruki, William G. Gilmartin, Brenda L. Becker, and Ian Stirling Wounding in Hawaiian monk seals (*Monachus schauinslandi*) 458

Lisa M. Hiruki, Ian Stirling, William G. Gilmartin, Thea C. Johanos, and Brenda L. Becker Significance of wounding to female reproductive success in Hawaiian monk seals (*Monachus schauinslandi*) at Laysan Island 469

Marten A. Koops and James W.A. Grant Weight asymmetry and sequential assessment in convict cichlid contests 475

Raymond D. Cameron, Walter T. Smith, Steven G. Fancy, Karen L. Gerhart, and Robert G. White Calving success of female caribou in relation to body weight 480

Tony E. Chubbs, Lloyd B. Keith, Shane P. Mahoney, and Michael J. McGrath Responses of woodland caribou (*Rangifer tarandus caribou*) to clear-cutting in east-central Newfoundland 487

Richard Winterbottom and Mary Burridge Revision of the species of *Priolepis* possessing a reduced transverse pattern of cheek papillae and no predorsal scales (Teleostei; Gobiidae) 494

J.D. McPhail Ecology and evolution of sympatric sticklebacks (*Gasterosteus*): origin of the species pairs 515

Glenys A. Hughes and Steven M. Carr Reciprocal hybridization between white-tailed deer (*Odocoileus virginianus*) and mule deer (*O. hemionus*) in western Canada: evidence from serum albumin and mtDNA sequences 524

Richard L. Leino and J. Howard McCormick Responses of juvenile largemouth bass to different pH and aluminum levels at overwintering temperatures: effects on gill morphology, electrolyte balance, scale calcium, liver glycogen, and depot fat 531

Gregory J. Robertson and Fred Cooke Intraclutch egg-size variation and hatching success in the common eider 544

Nevin Aspinwall, John D. McPhail, and Allan Larson A long-term study of hybridization between the peamouth, *Mylocheilus caurinus*, and the redside shiner, *Richardsonius balteatus*, at Stave Lake, British Columbia 550

Andrew E. Derocher, Dennis Andriashek, and John P.Y. Arnould Aspects of milk composition and lactation in polar bears 561

D. Dudley Williams, Annette Tavares-Cromar, Donn J. Kushner, and John R. Coleman Colonization patterns and life-history dynamics of *Culex* mosquitoes in artificial ponds of different character 568

M.R. Vestey, S.T. McMurry, and R.L. Lochmiller Influence of dietary protein on selected measures of humoral and cellular immunity in the cotton rat *Sigmodon hispidus* 579

Robert L. Wallis A key for the identification of guard hairs of some Ontario mammals 587

Ramon A. Carreno and Murray W. Lankester Additional information on the morphology of the Elaphostrongylinae (Nematoda: Protostrongylidae) of North American Cervidae 592

D.E. Spalinger, C.T. Robbins, and T.A. Hanley Adaptive rumen function in elk (*Cervus elaphus nelsoni*) and mule deer (*Odocoileus hemionus hemionus*) 601

Céline Audet, Michel Besner, Jean Munro, and Jean-Denis Dutil Seasonal and diel variations of various blood parameters in Atlantic cod (*Gadus morhua*) and American plaice (*Hippoglossoides platessoides*) 611

Geoffrey E. Hill The proximate basis of inter- and intra-population variation in female plumage coloration in the House Finch 619

Ann E. Hagerman and Charles T. Robbins Specificity of tannin-binding salivary proteins relative to diet selection by mammals 628

Krista D. Hanni and John S. Millar Fall molt and lipid storage in raccoons (*Procyon lotor*) 634

Réjean Fortin, Jean-René Mongeau, Gilles Desjardins, and Pierre Dumont Movements and biological statistics of lake sturgeon (*Acipenser fulvescens*) populations from the St. Lawrence and Ottawa River system, Quebec 638

Malika Sahni, Jacqueline Peignoux-Deville, and Evelyne Lopez Water balance and food consumption in dehydrated growing jirds (*Meriones shawi shawi*) 651

NOTES

I. Meierhofer The neuroanatomy of a pharmacophagous insect 657

Daniel K. Rosenberg and Robert G. Anthony Differences in trapping mortality rates of northern flying squirrels 660

APRIL/AVRIL

ARTICLES

Anthony Ricciardi and Henry M. Reiswig Freshwater sponges (Porifera, Spongillidae) of eastern Canada: taxonomy, distribution, and ecology 665

Nicholas J. Bernier, Daniel D. Heath, David J. Randall, and George K. Iwama Repeat sexual maturation of precocious male chinook salmon (*Oncorhynchus tshawytscha*) transferred to seawater 683

Hal Whitehead The behaviour of mature male sperm whales on the Galápagos Islands breeding grounds 689

J. Daniel McLaughlin, Marilyn E. Scott, and Jane E. Huffman *Sphaeridiotrema globulus* (Rudolphi, 1814) (Digenea): evidence for two species known under a single name and a description of ***Sphaeridiotrema pseudoglobulus*** n.sp. **700**

Susan Lingle Escape gaits of white-tailed deer, mule deer, and their hybrids: body configuration, biomechanics, and function **708**

Wendy E. Ralley, Terry D. Galloway, and Gary H. Crow Individual and group behaviour of pastured cattle in response to attack by biting flies **725**

Michael B. Griffith, Sue A. Perry, and William B. Perry Growth and secondary production of *Paracapnia angulata* Hanson (Plecoptera: Capniidae) in Appalachian streams affected by acid precipitation **735**

Linda Weilgart and Hal Whitehead Coda communication by sperm whales (*Physeter macrocephalus*) off the Galápagos Islands **744**

I. Kojola Early maternal investment and growth in reindeer **753**

Thierry Hance and Guy Boivin Effect of parasitism by *Anaphes* sp. (Hymenoptera: Mymaridae) on the cold hardiness of *Listronotus oregonensis* (Coleoptera: Curculionidae) eggs **759**

Edwin E. Lewis, Randy Gaugler, and Robert Harrison Response of cruiser and ambusher entomopathogenic nematodes (Steinernematidae) to host volatile cues **765**

Ronald W. Davies and J.H. Oosthuizen A new species of duck leech from North America formerly confused with *Theromyzon rude* (Rhynchobdellida: Glossiphoniidae) **770**

Randy J. Nelson and Joan M.C. Blom 6-Methoxy-2-benzoxazolinone and photoperiod: prenatal and postnatal influences on reproductive development in prairie voles (*Microtus ochrogaster ochrogaster*) **776**

Jean-Pierre Gasc Asymmetrical gait of the Saharian rodent *Meriones shawi shawi* (Duvernoy, 1842) (Rodentia, Mammalia): a high-speed cineradiographic analysis **790**

Thomas Bauer and Mechthild Kredler Morphology of the compound eyes as an indicator of life-style in carabid beetles **799**

Richard A. Tankersley and Ronald V. Dimock, Jr. Endoscopic visualization of the functional morphology of the ctenidia of the unionid mussel *Pyganodon cataracta* **811**

Kimberly A. Hammond Seasonal changes in gut size of the wild prairie vole (*Microtus ochrogaster*) **820**

Daniel Robineau et Vivian de Buffrénil Nouvelles données sur la masse du squelette chez les grands cétacés (Mammalia, Cetacea) **828**

S.A. Marshall and I.P. Smith A revision of the Nearctic *Pseudocollinella* Duda (Diptera: Sphaeroceridae) **835**

NOTE

Peggy H. Ostrom, Jon Lien, and Stephen A. Macko Evaluation of the diet of Sowerby's beaked whale, *Mesoplodon bidens*, based on isotopic comparisons among northwestern Atlantic cetaceans **858**

DISCUSSION

E.N. Arnold Comment—Function of the mite pockets of lizards: an assessment of a recent attempted test **862**

Aaron M. Bauer, Anthony P. Russell, and Norman R. Dollahon Function of the mite pockets of lizards: a reply to E.N. Arnold **865**

MAY/MAI

ARTICLES

Lui Marinelli and François Messier Space use and the social system of muskrats **869**

P.S. Reynolds Size, shape, and surface area of beaver, *Castor canadensis*, a semiaquatic mammal **876**

Xavier Mattei and Omar Thiom Thiaw Acrosome-like structures in the spermatozoa of teleost fishes **883**

W. Piasecki and B.M. MacKinnon Changes in structure of the frontal filament in sequential developmental stages of *Caligus elongatus* von Nordmann, 1832 (Crustacea, Copepoda, Siphonostomatoida) **889**

Bret C. Harvey Benthic assemblages in Utah headwater streams with and without trout **896**

Kristiina Ovaska Aggression and territoriality among sympatric western plethodontid salamanders **901**

Paul D.N. Hebert and Terrie L. Finston A taxonomic reevaluation of North American *Daphnia* (Crustacea: Cladocera). I. The *D. similis* complex **908**

S.D. Turnbull and J.M. Terhune Repetition enhances hearing detection thresholds in a harbour seal (*Phoca vitulina*) **926**

Stein R. Moe Mineral content and wildlife use of soil licks in southwestern Nepal **933**

Barry N. Milligan and R. Mark Brigham Sex ratio variation in the yuma bat (*Myotis yumanensis*) **937**

W.E. Hogans, Michael J. Dadswell, Leslie S. Uhazy, and Ralph G. Appy Parasites of American shad, *Alosa sapidissima* (Osteichthyes: Clupeidae), from rivers of the North American Atlantic coast and the Bay of Fundy, Canada **941**

Dominic S. Raso Functional morphology of laminin, collagen type IV, collagen bundles, elastin, and proteoglycans in the bulbus arteriosus of the white bass, *Morone chrysops* (Rafinesque) **947**

Jonathan Grant, Craig W. Emerson, and Sandra E. Shumway Orientation, passive transport, and sediment erosion features of the sea scallop *Placopecten magellanicus* in the benthic boundary layer 953

Robert W. Mackereth and Miles H.A. Keenleyside Breeding territoriality and pair formation in the convict cichlid (*Cichlasoma nigrofasciatum*; Pisces, Cichlidae) 960

C. Vilà, V. Urios, and J. Castroviejo Tooth losses and anomalies in the wolf (*Canis lupus*) 968

David C. Conley and Mark A. Curtis Effects of temperature and photoperiod on the duration of hatching, swimming, and copepodid survival of the parasitic copepod *Salmincola edwardsii* 972

Michael S. Rodway, Heidi M. Regehr, and Jean-Pierre L. Savard Activity levels of Marbled Murrelets in different inland habitats in the Queen Charlotte Islands, British Columbia 977

A. Bouhouche, T. Benziane et G. Vaysse Effets de deux mutations neurologiques, *minibrain*^{3} et *no-bridge*^{KS49}, sur la parade nuptiale chez *Drosophila melanogaster* 985

Christian Lydersen and Mike O. Hammill Diving in ringed seal (*Phoca hispida*) pups during the nursing period 991

Dale R. Calder ***Bougainvillia aberrans*** (Cnidaria, Hydrozoa), a new species of hydroid and medusa from the upper bathyal zone off Bermuda 997

Kelvin F. Conrad and Raleigh J. Robertson Clutch size in eastern phoebes (*Sayornis phoebe*). I. The cost of nest building 1003

Percy N. Hébert and Spencer G. Sealy Egg-size variation in Yellow Warblers: apportionment of parental investment and the brood-survival hypothesis 1008

Diane A. Pathy and Gerald L. Mackie Comparative shell morphology of *Dreissena polymorpha*, *Mytilopsis leucophaeata*, and the "quagga" mussel (Bivalvia: Dreissenidae) in North America 1012

David Evans Walter and Valerie M. Behan-Pelletier Systematics and ecology of ***Adhaesozetes polyphyllos*** sp.nov. (Acari: Oribatida: Licneremaeoidea), a leaf-inhabiting mite from Australian rainforests 1024

Lyn C. Branch Seasonal patterns of activity and body mass in the plains vizcacha, *Lagostomus maximus* (family Chinchillidae) 1041

Odd W. Jacobsen Use of feeding habitats by breeding Eurasian wigeon 1046

NOTES

Marc Gauthier et Donald W. Thomas Succès relatif de deux tentatives consécutives de nidification chez l'Hirondelle à front blanc (*Hirundo pyrhonotta*) à Sherbrooke, Québec 1055

Andrew G. Horn, Thomas E.Dickinson, and J. Bruce Falls Male quality and song repertoires in western meadowlarks (*Sturnella neglecta*) 1059

F. Boero and J. Bouillon *Fraseroscyphus sinuosus* n.gen. (Cnidaria, Hydrozoa, Leptomedusae, Sertulariidae), an epiphytic hydroid with a specialised clinging organ 1061

Phillip J. Clapham, David K. Mattila, and Per J. Palsbøll High-latitude-area composition of humpback whale competitive groups in Samana Bay: further evidence for panmixis in the North Atlantic population 1065

Kristina Curren, Neil Bose, and Jon Lien Morphological variation in the harbour porpoise (*Phocoena phocoena*) 1067

Nina Hedlund Markussen Transit time of digesta in captive harbour seals (*Phoca vitulina*) 1071

JUNE/JUIN

ARTICLES

Raymond McNeil, Rejean Benoît, and Jean-Luc DesGranges Daytime and nighttime activity at a breeding colony of Great Blue Herons in a nontidal environment 1075

David P. Hervieux, Fred C. Zwickel, and Richard A. Lewis Variations in courtship activity among male blue grouse: do some males breed more than others? 1079

Jean Ferron How do population density and food supply influence social behaviour in the snowshoe hare (*Lepus americanus*)? 1084

Vincent L. St. Louis and Jon C. Barlow The reproductive success of tree swallows nesting near experimentally acidified lakes in northwestern Ontario 1090

Graeme C. Hays, Colin R. Adams, and John R. Speakman Reproductive investment by green turtles nesting on Ascension Island 1098

José A. Díaz Breeding coloration, mating opportunities, activity, and survival in the lacertid lizard *Psammodromus algirus* 1104

Deborah A. McLennan Temporal changes in the structure of the male nuptial signal in the brook stickleback, *Culaea inconstans* (Kirtland) 1111

Marc Gauthier and Donald W. Thomas Nest site selection and cost of nest building by Cliff Swallows (*Hirundo pyrrhonota*) 1120

Masao Amano and Nobuyuki Miyazaki External morphology of Dall's porpoise (*Phocoenoides dalli*): growth and sexual dimorphism 1124

V.L. Trudeau, M.G. Wade, G. Van Der Kraak, and R.E. Peter Effects of 17β-estradiol on pituitary and testicular function in male goldfish 1131

Keith M. Somers and Roger H. Green Seasonal patterns in trap catches of the crayfish *Cambarus bartoni* and *Orconectes virilis* in six south–central Ontario lakes 1136

Todd W. Arnold Factors affecting egg viability and incubation time in prairie dabbling ducks 1146

J.K. Leslie and C.A. Timmins Distribution, density, and growth of young-of-the-year fishes in Mitchell Bay, Lake St. Clair 1153

Rowland M. Shelley The milliped genus *Isaphe* Cook (Polydesmida: Xystodesmidae) 1161

Hemendra Mulye and Roger Gordon Effects of two juvenile hormone analogs on hemolymph and fat-body metabolites of the eastern spruce budworm, *Choristoneura fumiferana* (Clemens) (Lepidoptera: Tortricidae) 1169

Taoufiq Benziane et Mireille Campan Effets d'un élevage en isolement sur le développement gonadotrope, la production d'hydrocarbures cuticulaires et le comportement sexuel de *Calliphora vomitoria* (Diptères, Calliphoridae) 1175

Fritz Geiser and G.J. Kenagy Dietary fats and torpor patterns in hibernating ground squirrels 1182

Steven E. Travis and C.N. Slobodchikoff Effects of food resource distribution on the social system of Gunnison's prairie dog (*Cynomys gunnisoni*) 1186

Janalee P. Caldwell Brazil nut fruit capsules as phytotelmata: interactions among anuran and insect larvae 1193

Bai Xiong and Thomas D. Kocher Intraspecific variation in sibling species of *Simulium venustum* and *Simulium verecundum* complexes (Diptera: Simuliidae) revealed by the sequence of the mitochondrial 16S rRNA gene 1202

M.L. Kent, D.J. Whitaker, and L. Margolis Transmission of *Myxobolus arcticus* Pugachev and Khokhlov, 1979, a myxosporean parasite of Pacific salmon, via a triactinomyxon from the aquatic oligochaete *Stylodrilus heringianus* (Lumbriculidae) 1207

N.N. Winchester, G.B. Wiggins, and R.A. Ring The immature stages and biology of the unusual North American arctic caddisfly *Sphagnophylax meiops*, with consideration of the phyletic relationships of the genus (Trichoptera: Limnephilidae) 1212

J.Z. Adamczewski, R.J. Hudson, and C.C. Gates Winter energy balance and activity of female caribou on Coats Island, Northwest Territories: the relative importance of foraging and body reserves 1221

C.B. Murray, T.D. Beacham, and L.W. Barner Growth and survival of newly emerged and juvenile coho salmon (*Oncorhynchus kisutch*) reared at different salinities 1230

Peter S. Davie and Craig E. Franklin Preliminary observations on blood flow in the coronary arteries of two school sharks (*Galeorhinus australis*) 1238

H.-U. Dahms Internal anatomy of female *Paramphiascella fulvofasciata* (Copepoda, Harpacticoida) 1242

T. Klepaker Morphological changes in a marine population of threespined stickleback, *Gasterosteus aculeatus*, recently isolated in fresh water 1251

Magella Guillemette, John H. Himmelman, Cyrille Barette, and Austin Reed Habitat selection by common eiders in winter and its interaction with flock size 1259

NOTES

P.W. Hochachka, J.C. Nener, J. Hoar, R.K. Saurez, and S.C. Hand Disconnecting metabolism from adenylate control during extreme oxygen limitation 1267

Terry D. Beacham Competition between juvenile pink (*Oncorhynchus gorbuscha*) and chum salmon (*Oncorhynchus keta*) and its effect on growth and survival 1270

A. Cabanac, J.-F. Hamel, and J.H. Himmelman Morphological adaptations of the sand dollar *Echinarachnius parma* to righting itself 1274

Thomas J. DeWitt Nest-site preference in male fathead minnows, *Pimephales promelas* 1276

JULY / JUILLET

ARTICLES

C. Kenneth Dodd, Jr. Population structure, body mass, activity, and orientation of an aquatic snake (*Seminatrix pygaea*) during a drought 1281

Marianne Køie Aspects of the life cycle and morphology of *Hysterothylacium aduncum* (Rudolphi, 1802) (Nematoda, Ascaridoidea, Anisakidae) 1289

F. Daniel Vogt and Peter Kakooza The influence of nest sharing on the expression of daily torpor in the white-footed mouse 1297

Jon E. Swenson and Per Angelstam Habitat separation by sympatric forest grouse in Fennoscandia in relation to boreal forest succession 1303

J.H. Oosthuizen and Ronald W. Davies A new species of *Theromyzon* (Rhynchobdellida: Glossiphoniidae), with a review of the genus in North America 1311

E. Reimers Antlerless females among reindeer and caribou 1319

C. Dustin Becker Environmental cues of estrus in the North American red squirrel (*Tamiasciurus hudsonicus* Bangs) 1326

D.A. Chant Paedomorphosis in the family Phytoseiidae (Acari: Gamasina) 1334

Marie Novak, Claudia Hudspeth, Richard Buist, and Barry Blackburn ^{31}P magnetic resonance spectroscopy of the liver region and liver of mice infected with *Mesocestoides vogae* 1350

Albert O. Bush, Richard W. Heard, Jr., and Robin M. Overstreet Intermediate hosts as source communities 1358

Donald R. Johnson and Pall Hersteinsson Inheritance models of North American red fox coat color 1364

Petr E. Komers, François Messier, and Cormack C. Gates Group structure in wood bison: nutritional and reproductive determinants 1367

Barbara E. Taylor and Thomas H. Carefoot Terrestrial life in isopods: evolutionary loss of gas-exchange and survival capability in water 1372

John M. Grizzle, Keith A. Cummins, and C.J. Ashfield Effects of environmental concentrations of calcium and sodium on the calcium flux in stressed 34-day-old striped bass 1379

Lloyd B. Keith, Sara E.M. Bloomer, and Tomas Willebrand Dynamics of a snowshoe hare population in fragmented habitat 1385

R.C. Plowright, James D. Thomson, L.P. Lefkovitch, and C.M.S. Plowright An experimental study of the effect of colony resource level manipulation on foraging for pollen by worker bumble bees (Hymenoptera: Apidae) 1393

Katherine L. Parker, Michael P. Gillingham, Thomas A. Hanley, and Charles T. Robbins Seasonal patterns in body mass, body composition, and water transfer rates of free-ranging and captive black-tailed deer (*Odocoileus hemionus sitkensis*) in Alaska 1397

M.M.C. Muelbert and W.D. Bowen Duration of lactation and postweaning changes in mass and body composition of harbour seal, *Phoca vitulina*, pups 1405

Marianne B. Willey and Robert R. Jackson Olfactory cues from conspecifics inhibit the web-invasion behavior of *Portia*, web-invading araneophagic jumping spiders (Araneae: Salticidae) 1415

Trond Histøl and Olav Hjeljord Winter feeding strategies of migrating and nonmigrating moose 1421

Susan E. Lewis Effect of climatic variation on reproduction by pallid bats (*Antrozous pallidus*) 1429

Ulrich K. Einsle *Megacyclops magnus* (Marsh, 1920) (Crustacea, Copepoda) in northern Canada, a comparison with European *Megacyclops* species 1434

Hugh F. Clifford, Gillian M. Wiley, and Richard J. Casey Macroinvertebrates of a beaver-altered boreal stream of Alberta, Canada, with special reference to the fauna on the dams 1439

Steven T. Knick, Eric C. Hellgren, and Ulysses S. Seal Hematologic, biochemical, and endocrine characteristics of bobcats during a prey decline in southeastern Idaho 1448

NOTES

Carlos Garcia de Leaniz, Neil Fraser, and Felicity Huntingford Dispersal of Atlantic salmon fry from a natural redd: evidence for undergravel movements? 1454

Kent E. Edmonds and Milton H. Stetson The rice rat *Oryzomys palustris* in a Delaware salt marsh: annual reproductive cycle 1457

Sherwin S. Desser *Myxobolus lii* nom.nov.: a replacement for *M. gibbosus* Li and Desser, 1985 (Myxosporea: Myxozoa), preoccupied 1461

Katherine L. Parker, Michael P. Gillingham, and Thomas A. Hanley An accurate technique for estimating forage intake of tractable animals 1462

Jean-Pierre Desportes, Neil B. Metcalfe, James W. Popp, Richard M. Meyer, Alain Gallo, and Frank Cézilly Relationships between scan and interscan durations in three avian species 1466

Martha Dunham Changes in mass, fat content, and water content with growth in adult *Pachydiplax longipennis* (Odonata: Libellulidae) 1470

V.L. Friesen, R.T. Barrett, W.A. Montevecchi, and W.S. Davidson Molecular identification of a backcross between a female common murre × thick-billed murre hybrid and a male common murre 1474

Suzanne G. Ayvazian Observations of asymmetric reproduction along a morphocline of the blackspotted stickleback, *Gasterosteus wheatlandi* 1477

AUGUST/AOÛT

ARTICLES

Oksana A. Borowik and Mark D. Engstrom Chromosomal evolution and biogeography of collared lemmings (*Dicrostonyx*) in the eastern and High Arctic of Canada 1481

Tiu Similä and Fernando Ugarte Surface and underwater observations of cooperatively feeding killer whales in northern Norway 1494

P.-Y. Le Bail, B. Mourot, Y. Zohar, and J. Pérez-Sánchez Application of a sensitive radioimmunoassay for the measurement of growth hormone in gilthead sea bream (*Sparus aurata*) and other sparid fish 1500

A. Blanc Ultradian and circadian rhythmicity of behavioral activities in the young snail *Helix aspersa maxima* (Gastropoda, Helicidae) 1506

T.D. Fitzgerald and F.X. Webster Identification and behavioral assays of the trail pheromone of the forest tent caterpillar, *Malacosoma disstria* Hübner (Lepidoptera: Lasiocampidae) 1511

Leslie-Anne Howes and William A. Montevecchi Population trends and interactions among terns and gulls in Gros Morne National Park, Newfoundland 1516

Richard Stephenson The contributions of body tissues, respiratory system, and plumage to buoyancy in waterfowl 1521

M. Lauzon and P.P. Harper The life cycle of the aquatic snipe fly *Atherix lantha* Webb (Diptera Brachycera; Athericidae) in Quebec 1530

Jaime Potti Environmental, ontogenetic, and genetic variation in egg size of Pied Flycatchers 1534

Susan C. Walls, Joseph J. Beatty, Brian N. Tissot, D. Grant Hokit, and Andrew R. Blaustein Morphological variation and cannibalism in a larval salamander (*Ambystoma macrodactylum columbianum*) 1543

E.R. Loew and A.J. Sillman Age-related changes in the visual pigments of the white sturgeon (*Acipenser transmontanus*) 1552

A.B. Singh and Chandra Mohini Chaturvedi Effect of altered thyroid and adrenal activity on the seasonal reproduction of the Indian palm squirrel, *Funambulus pennanti* 1558

Francine P. Lewis, James H. Fullard, and Scott B. Morrill Auditory influences on the flight behaviour of moths in a Nearctic site. II. Flight times, heights, and erraticism 1562

L. Nonnotte, F. Boitel, and J.P. Truchot Waterborne copper causes gill damage and hemolymph hypoxia in the shore crab *Carcinus maenas* 1569

Darwin R. Wiggett and David A. Boag Annual reproductive success in three cohorts of Columbian ground squirrels: founding immigrants, subsequent immigrants, and natal residents 1577

Brian G. Walker and W. Don Bowen Behavioural differences among adult male harbour seals during the breeding season may provide evidence of reproductive strategies 1585

Marcel Darveau, Gilles Gauthier, Jean-Luc DesGranges, and Yves Mauffette Nesting success, nest sites, and parental care of the least flycatcher in declining maple forests 1592

William R. Driedzic, Heidi L. Crowe, Peter W. Hicklin, and Dawn H. Sephton Adaptations in pectoralis muscle, heart mass, and energy metabolism during premigratory fattening in semipalmated sandpipers (*Calidris pusilla*) 1602

J. Cable and R.C. Tinsley The ultrastructure of spermatogenesis and spermatozoa in *Pseudodiplorchis americanus* (Monogenea: Polystomatidae) 1609

William R. Clark and Darryl W. Kroeker Population dynamics of muskrats in experimental marshes at Delta, Manitoba 1620

Kimberly G. Smith and Peter G. Connors Postbreeding habitat selection by shorebirds, water birds, and land birds at Barrow, Alaska: a multivariate analysis 1629

Claire Tirard, Patrick Berrebi, André Raibaut, and François Renaud Biodiversity and biogeography in heterospecific teleostean (Gadidae) – copepod (*Lernaeocera*) associations 1639

Cheryl C. Hogue, Daniel R. Sutherland, and Bruce M. Christensen Ecology of metazoan parasites infecting *Catostomus* spp. (Catostomidae) from southwestern Lake Superior 1646

Laurence Packer Two distinctive new species of halictine bees from high altitude in the New World tropics (Hymenoptera: Halictidae) 1653

Tore Næss, Jens Petter Nilssen, and Reidar Demmo Individual lake characteristics modify the life cycle and diapause habitat of two neighbouring populations of the cyclopoid copepod *Thermocyclops oithonoides* 1663

Greg G. Goss and Steve F. Perry Physiological and morphological regulation of acid–base status during hypercapnia in rainbow trout (*Oncorhynchus mykiss*) 1673

Jon M. Gerrard, Elston Dzus, Gary R. Bortolotti, and P. Naomi Gerrard Water-bird population changes in 1976–1990 on Besnard Lake, Saskatchewan: increases in loons, gulls, and pelicans 1681

NOTES

Victor Van Ballenberghe and Dale G. Miquelle Mating in moose: timing, behavior, and male access patterns 1687

Naohiko Sagara, Hisashi Abe, and Hiroaki Okabe The persistence of moles in nesting at the same site as indicated by mushroom fruiting and nest reconstruction 1690

Lloyd B. Keith and Sara E.M. Bloomer Differential mortality of sympatric snowshoe hares and cottontail rabbits in central Wisconsin 1694

T.A. Greaves, M.D.B. Burt, and W. Pilgrim On the life cycle of *Diorchis bulbodes* Mayhew, 1929 (Cyclophyllidea: Hymenolepididae), a parasite of waterfowl (Anseriformes: Anatidae) 1697

P.G. Kevan and O. Kukal Corrigendum: A balanced life table for *Gynaephora groenlandica* (Lepidoptera: Lymantriidae), a long-lived high arctic insect, and implications for the stability of its populations 1699

SEPTEMBER/SEPTEMBRE

ARTICLES

Carita M. Bergman and Charles J. Krebs Diet overlap of collared lemmings and tundra voles at Pearce Point, Northwest Territories 1703

W.J. Turnock Cold-hardiness of *Lacanobia atlantica* (Lepidoptera: Noctuidae), and a comparison with three other insect species that overwinter in the same habitat 1710

P. le F.N. Mouton and J.H. van Wyk Sexual dimorphism in cordylid lizards: a case study of the Drakensberg crag lizard, *Pseudocordylus melanotus* 1715

Joel W. Martin, Scott C. France, and Cindy Lee Van Dover ***Halice hesmonectes***, a new species of pardaliscid amphipod (Crustacea, Peracarida) from hydrothermal vents in the eastern Pacific 1724

Rony Rado, Uri Shanas, Ido Zuri, and Joseph Terkel Seasonal activity in the blind mole rat (*Spalax ehrenbergi*) 1733

Kelvin F. Conrad and Raleigh J. Robertson Clutch size in eastern phoebes (*Sayornis phoebe*) II: age effects and seasonal variation 1738

Taye Teferi and John S. Millar Early maturation by northern *Peromyscus maniculatus* 1743

Michael R. Gorman, Michael H. Ferkin, Randy J. Nelson, and Irving Zucker Reproductive status influences odor preferences of the meadow vole, *Microtus pennsylvanicus*, in winter day lengths 1748

Glen D. Foster and T.W. Moon Hormonal sensitivity and responsiveness in sea raven hepatocytes: changes with fasting and collagenase exposure 1755

Sheila Toews, Mary Beverley-Burton, and Tara Lawrimore Helminth and protist parasites of zebra mussels, *Dreissena polymorpha* (Pallas, 1771), in the Great Lakes region of southwestern Ontario, with comments on associated bacteria 1763

Darin C. Bennett and Leslie E. Hart Metabolizable energy of fish when fed to captive Great Blue Herons (*Ardea herodias*) 1767

T. Arnbom, M.A. Fedak, I.L. Boyd, and B.J. McConnell Variation in weaning mass of pups in relation to maternal mass, postweaning fast duration, and weaned pup behaviour in southern elephant seals (*Mirounga leonina*) at South Georgia 1772

Hasse Fängstam Individual downstream swimming speed during the natural smolting period among young of Baltic salmon (*Salmo salar*) 1782

L.C. Cuyler and N.A. Øritsland Metabolic strategies for winter survival by Svalbard reindeer 1787

Françoise Athias-Binche Dispersal in varying environments: the case of phoretic uropodid mites 1793

Tim C. Frandsen, Susan S. Boyd, and Patricia J. Berger Maternal transfer of the 6-MBOA chemical signal in *Microtus montanus* during gestation and lactation 1799

Claude Carré et Danièle Carré ***Ctenella aurantia***, genre et espèce nouveaux de cténophore tentaculé (Ctenellidae fam.nov.) méditerranéen sans colloblastes et avec ventouses labiales 1804

James L. Bodkin, Dan Mulcahy, and Calvin J. Lensink Age-specific reproduction in female sea otters (*Enhydra lutris*) from south-central Alaska: analysis of reproductive tracts 1811

Philippe Grandcolas Le genre *Therea* Billberg, 1820 : position phylogénétique, nouvelles espèces, répartition, valence écologique (Dictyoptera, Blattaria, Polyphaginae) 1816

Jean-Marie Bergeron and Louise Jodoin Intense grazing by voles (*Microtus pennsylvanicus*) and its effect on habitat quality 1823

Anthony J. Gaston and Michael S.W. Bradstreet Intercolony differences in the summer diet of Thick-billed Murres in the eastern Canadian Arctic 1831

Katherine L. Parker, Glenn D. DelGiudice, and Michael P. Gillingham Do urinary urea nitrogen and cortisol ratios of creatinine reflect body-fat reserves in black-tailed deer? 1841

James A. Raymond Glycerol and water balance in a near-isosmotic teleost, winter-acclimatized rainbow smelt 1849

Thomas G. Rand Light and scanning electron microscopic studies on ***Trichodina labrisomi*** n.sp. from *Labrisomas nuchipinnis* (Osteichthyes: Labrisomidae) from Mangrove Lake, Bermuda 1855

F. Pardos, C. Roldán, J. Benito, A. Aguirre, and I. Fernández Ultrastructure of the lophophoral tentacles in the genus *Phoronis* (Phoronida, Lophophorata) 1861

R.C. Anderson, E.T. Barnes, and C.M. Bartlett Restudy of *Spirura infundibuliformis* McLeod, 1933 (Nematoda: Spiruroidea) from *Spermophilus richardsonii*, with observations on its development in insects 1869

Claude Miaud, Pierre Joly, and Jacques Castanet Variation in age structures in a subdivided population of *Triturus cristatus* 1874

Claudia Gérard, Hélène Moné, and André Théron *Schistosoma mansoni* − *Biomphalaria glabrata* : dynamics of the sporocyst population in relation to the miracidial dose and the host size 1880

Lawrence H. Taylor, Brian K. Hall, and David K. Cone Experimental infection of yellow perch (*Perca flavescens*) with *Apophallus brevis* (Digenea, Heterophyidae): parasite invasion, encystment, and ossicle development 1886

Clark P. Holden and Kenneth B. Storey Regulation of phosphofructokinase and the control of cryoprotectant synthesis in a freeze-avoiding insect 1895

NOTES

L. David Mech Details of a confrontation between two wild wolves 1900

Ian Mayer, Gunilla Rosenqvist, Bertil Borg, Ingrid Ahnesjö, Anders Berglund, and Rüdiger W. Schulz Plasma levels of sex steroids in three species of pipefish (Syngnathidae) 1903

Robert Harcourt Individual variation in predation on fur seals by southern sea lions (*Otaria byronia*) in Peru 1908

Tim P. Birt and John M. Green Acclimation to seawater of dwarf nonanadromous Atlantic salmon, *Salmo salar* 1912

OCTOBER/OCTOBRE

REVIEW / SYNTHÈSE

R.C. Anderson and Cheryl M. Bartlett The significance of precocity in the transmission of the nematode parasites of vertebrates 1917

ARTICLES

Roy G. Danzmann, Moira M. Ferguson, and Steven K.A. Arndt Mitochondrial DNA variability in Ontario and New York rainbow trout (*Oncorhynchus mykiss*) 1923

Richard A. Tankersley and Ronald V. Dimock, Jr. The effect of larval brooding on the filtration rate and particle-retention efficiency of *Pyganodon cataracta* (Bivalvia: Unionidae) 1934

Catherine Perrin, Jacques Coulon, and Michel Le Berre Social behavior of alpine marmots (*Marmota marmota*): seasonal, group, and individual variability 1945

Henry M. Reiswig and Anthony Ricciardi Reexamination of *Corvospongilla novaeterrae* (Porifera, Spongillidae), an environmentally restricted freshwater sponge from eastern Canada 1954

R.H. Gooding Genetic analysis of sterility in hybrids from crosses of *Glossina morsitans submorsitans* and *Glossina morsitans centralis* (Diptera: Glossinidae) 1963

K. Håkan Olsén Development of the olfactory organ of the Arctic charr, *Salvelinus alpinus* (L.) (Teleostei, Salmonidae) 1973

Richard B. King Color pattern variation in Lake Erie water snakes: inheritance 1985

Sean C. Smith and Hal Whitehead Variations in the feeding success and behaviour of Galápagos sperm whales (*Physeter macrocephalus*) as they relate to oceanographic conditions 1991

Zhi-Qiang Zhang and John P. Sanderson Hunger and age effects on searching behavior of three species of predatory mites (Acari: Phytoseiidae) 1997

S.M. Bower and G.R. Meyer ***Stegotricha enterikos*** gen.nov., sp.nov. (class Phyllopharyngea, order Rhynchodida), a parasitic ciliate in the digestive gland of Pacific oysters (*Crassostrea gigas*), and its distribution in British Columbia 2005

J.H. Youson Effects of starvation on iron concentration and deposition in tissues of larval lampreys, *Petromyzon marinus* L.: morphological and quantitative analyses 2018

Roger S. Wotton, Mark S. Wipfli, Luke Watson, and Richard W. Merritt Feeding variability among individual aquatic predators in experimental channels 2033

D.C. Reddy and Ronald W. Davies Bioenergetic responses to the initiation of winter and glycerol formation in the leech *Nephelopsis obscura* 2038

Loredana Stabili, Patrizia Pagliara, and Calogero Canicattì Characterization and isolation of an agglutinin from seminal plasma of the sea urchin 2042

Lesley V. Higgins and Leila Gass Birth to weaning: parturition, duration of lactation, and attendance cycles of Australian sea lions (*Neophoca cinerea*) 2047

Richard Winterbottom and Mary Burridge Revision of Indo-Pacific *Prolepis* species possessing a reduced transverse pattern of cheek papillae, and predorsal scales (Teleostei; Gobiidae) 2056

Richard Winterbottom and Mary Burridge A new species of *Priolepis* (Teleostei; Gobiidae) from the Kermadec Islands, southwest Pacific Ocean, with comments on relationships 2077

Jamelia A. Williams, Stephen M. Dawson, and Elisabeth Slooten The abundance and distribution of bottlenosed dolphins (*Tursiops truncatus*) in Doubtful Sound, New Zealand 2080

P.W. Hochachka and R.A. Foreman III Phocid and cetacean blueprints of muscle metabolism 2089

Greg J. Klassen *Haliotrema* species (Monogenea: Ancyrocephalidae) from Indo-Pacific boxfishes (Tetraodontiformes: Ostraciidae) 2099

Mary E. Murphy The protein requirement for maintenance in the White-crowned Sparrow, *Zonotrichia leucophrys gambelii* 2111

Mary E. Murphy The essential amino acid requirements for maintenance in the White-crowned Sparrow, *Zonotrichia leucophyrs gambelii* 2121

Alvin P. Dyck and Robert A. MacArthur Daily energy requirements of beaver (*Castor canadensis*) in a simulated winter microhabitat 2131

P.P. Harper, L. LeSage, and M. Lauzon The life cycle of *Podmosta macdunnoughi* (Ricker) in the Lower Laurentians, Quebec (Plecoptera: Nemouridae), with a discussion on embryonic diapause 2136

NOVEMBER/NOVEMBRE

ARTICLES

Christoph Steeger and Ronald C. Ydenberg Clutch size and initiation date of ospreys: natural patterns and the effect of a natural delay 2141

Geoffrey R. Smith and John B. Iverson Reproduction in the curly-tailed lizard *Leiocephalus psammodromus* from the Caicos Islands 2147

Geoffrey R. Smith, Royce E. Ballinger, and Justin D. Congdon Thermal ecology of the high-altitude bunch grass lizard, *Sceloporus scalaris* 2152

John Brattey and Garry B. Stenson Host specificity and abundance of parasitic nematodes (Ascaridoidea) from the stomachs of five phocid species from Newfoundland and Labrador 2156

John R. Bailey and William R. Driedzic Influence of low temperature acclimation on fate of metabolic fuels in rainbow trout (*Oncorhynchus mykiss*) hearts 2167

S.C. Amstrup, G.W. Garner, M.A. Cronin, and J.C. Patton Sex identification of polar bears from blood and tissue samples 2174

C. Anna Toline and Allan J. Baker Foraging tactic as a potential selection pressure influencing geographic differences in body shape among populations of dace (*Phoxinus eos*) 2178

Eric A. Luiker and E. Don Stevens Effect of stimulus train duration and cycle frequency on the capacity to do work in the pectoral fin muscle of the pumpkinseed sunfish, *Lepomis gibbosus* 2185

Ajmal Murad, Susan Everill, and Arthur Houston Division of goldfish erythrocytes in circulation 2190

I.A.S. Irvine and P.W. Sorensen Acute olfactory sensitivity of wild common carp, *Cyprinus carpio*, to goldfish hormonal sex pheromones is influenced by gonadal maturity 2199

Sylvie Asselin, Mike O. Hammill, and Cyrille Barrette Underwater vocalizations of ice breeding grey seals 2211

Marianne B. Willey and Robert R. Jackson Predatory behavior of a social spider, *Stegodyphus sarasinorum* (Araneae: Eresidae): why attack first? 2220

William L. Hohman Body composition dynamics of ruddy ducks during wing moult 2224

Olin E. Rhodes, Jr., Loren M. Smith, and Ronald K. Chesser Temporal components of genetic variation in migrating and wintering American wigeon 2229

C. McArthur, C.T. Robbins, A.E. Hagerman, and T.A. Hanley Diet selection by a ruminant generalist browser in relation to plant chemistry 2236

Jane M. Winchell and Thomas H. Kunz Sampling protocols for estimating time budgets of roosting bats 2244

Réjean Benoit, Jean-Luc DesGranges, and Raymond McNeil Directions of arrivals of Great Blue Herons (*Ardea herodias*) at nests with large chicks near Montréal, Quebec 2250

George A. Bubenik and Ludek Bartos Cortisol levels in red deer (*Cervus elaphus*) and fallow deer (*Dama dama*) after an acute ACTH administration 2258

Michael L. Fine, Barbara Bernard, and Thomas M. Harris Functional morphology of toadfish sonic muscle fibers: relationship to possible fiber division 2262

Iwona M. Pawlina, David A. Boag, and Frank E. Robinson Population structure and changes in body mass and composition of mallards (*Anas platyrhynchos*) wintering in Edmonton, Alberta 2275

M.T. Pardue, J.G. Sivak, and K.M. Kovacs Corneal anatomy of marine mammals 2282

Michel Crête and Jean Huot Regulation of a large herd of migratory caribou: summer nutrition affects calf growth and body reserves of dams 2291

Patrick L. Mathews and Thomas L. Bultman Mating behavior of a parajulid millipede, *Aniulus bollmani* 2297

Günther K.H. Zupanc and Leonard Maler Evoked chirping in the weakly electric fish *Apteronotus leptorhynchus*: a quantitative biophysical analysis 2301

Elisabeth Slooten, Stephen M. Dawson, and Hal Whitehead Associations among photographically identified Hector's dolphins 2311

Paolo Domenici and Robert W. Blake The effect of size on the kinematics and performance of angelfish (*Pterophyllum eimekei*) escape responses 2319

NOTES

Bertil Borg, Efthimia Antonopoulou, Eva Andersson, Tomas Carlberg, and Ian Mayer Effectiveness of several androgens in stimulating kidney hypertrophy, a secondary sexual character, in castrated male three-spined sticklebacks, *Gasterosteus aculeatus* 2327

David M. Anderson Occurrence of *Salmincola siscowet* (Copepoda: Lernaeopodidae) on lake trout (*Salvelinus namaycush*) and lake trout backcross (*S. namaycush* × *S. fontinalis*) in Lake Huron 2330

DECEMBER/DÉCEMBRE

ARTICLES

Richard C. Ferrero and William A. Walker Growth and reproduction of the northern right whale dolphin, *Lissodelphis borealis*, in the offshore waters of the North Pacific Ocean 2335

James G. MacCracken, Victor Van Ballenberghe, and James M. Peek Use of aquatic plants by moose: sodium hunger or foraging efficiency? 2345

Patrick F.J. Garcia, Marilyn S. Merkle, and Robert M.R. Barclay Energy allocation to reproduction and maintenance in mountain bluebirds (*Sialia currucoides*): a food supplementation experiment 2352

Shannon A. Fraser, Brian D. Wisenden, and Miles H.A. Keenleyside Aggressive behaviour among convict cichlid (*Cichlasoma nigrofasciatum*) fry of different sizes and its importance to brood adoption 2358

L.J. Shirose, R.J. Brooks, J.R. Barta, and S.S. Desser Intersexual differences in growth, mortality, and size at maturity in bullfrogs in central Ontario 2363

Laurie J. Vitt Ecology of isolated open-formation *Tropidurus* (Reptilia: Tropiduridae) in Amazonian lowland rain forest 2370

Laurie J. Vitt, Peter A. Zani, Janalee P. Caldwell, and Richard D. Durtsche Ecology of the whiptail lizard *Cnemidophorus deppii* on a tropical beach 2391

N. John Olyslager and D. Dudley Williams Microhabitat selection by the lotic amphipod *Gammarus pseudolimnaeus* Bousfield: mechanisms for evaluating local substrate and current suitability 2401

Steve J. Upton, Chris T. McAllister, and Stanley E. Trauth The coccidia (Apicomplexa: Eimeriidae) of Caudata (Amphibia), with descriptions of two new species from North America 2410

Alyre Chiasson The effects of suspended sediment on rainbow smelt (*Osmerus mordax*): a laboratory investigation 2419

M.L. Kent, D.J. Whitaker, and L. Margolis ***Sphaerospora oncorhynchi*** n.sp. (Myxosporea: Sphaerosporidae) from the kidney of sockeye salmon (*Oncorhynchus nerka*) in British Columbia and its possible relationship to the myxosporean causing proliferative kidney disease in salmonid fishes 2425

Xiaofeng Chen and Bruno Baur The effect of multiple mating on female reproductive success in the simultaneously hermaphroditic land snail *Arianta arbustorum* 2431

Bernhard A. Huber Genital mechanics and sexual selection in the spider *Nesticus cellulanus* (Araneae: Nesticidae) 2437

John B. Iverson, Christine P. Balgooyen, Kathy K. Byrd, and Kelly K. Lyddan Latitudinal variation in egg and clutch size in turtles 2448

Randolph F. Lauff, Anthony P. Russell, and Aaron M. Bauer Topography of the digital cutaneous sensilla of the tokay gecko, *Gekko gecko* (Reptilia, Gekkonidae), and their potential role in locomotion 2462

N. Møller Andersen Classification, phylogeny, and zoogeography of the pond skater genus *Gerris* Fabricius (Hemiptera: Gerridae) 2473

Jon T. Jorgenson, Marco Festa-Bianchet, Mauro Lucherini, and William D. Wishart Effects of body size, population density, and maternal characteristics on age at first reproduction in bighorn ewes 2509

Nigel G. Yoccoz, Rolf A. Ims, and Harald Steen Growth and reproduction in island and mainland populations of the vole *Microtus epiroticus* 2518

Alan E. Burger, Rory P. Wilson, Don Garnier, and Marie-Pierre T. Wilson Diving depths, diet, and underwater foraging of Rhinoceros Auklets in British Columbia 2528

David J. Anderson, Jo Reeve, Juan E. Martinez Gomez, Wesley W. Weathers, Siobhan Hutson, Heather V. Cunningham, and David M. Bird Sexual size dimorphism and food requirements of nestling birds **2541**

NOTE

Paul F. Brodie Noise generated by the jaw actions of feeding fin whales **2546**

Author index for Volume 71 / Index des auteurs pour le volume 71 **AI-1**

Contents for Volume 71 / Sommaire pour le volume 71 **C-1**